REMARKS

Claims 1-39 are pending in the application.

Previous Rejections

Withdrawal of the previous rejections is noted and appreciated by the Applicant.

35 U.S.C. § 102 and § 103 Rejections

In the present Office Action, claims 1-7, 9-12, 13-19, 21-36, and 38-39 stand rejected under 35 U.S.C. § 102(e) as being anticipated by newly cited U.S. Patent No. 6,195,680 (hereinafter "Goldszmidt"). Further, claims 8, 20, and 37 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Goldszmidt in view of U.S. Patent No. 6,249,801 (hereinafter Zisapel). Applicant respectfully traverses the above rejections and requests reconsideration in view of the following discussion.

Generally speaking, the examiner seeks to equate Goldszmidt's system of a client receiving a stream from one of multiple servers with the presently claimed features of a multi-streaming microprocessor and processor core. However, the nature of Goldszmidt's system is quite different from that of the presently claimed invention, and the features of the presently claimed invention are readily distinguished from the cited art. For example, in Goldszmidt it is stated that:

> "[t]his invention relates generally to providing fault tolerance and load balancing for real-time data streaming. More particularly, it relates to a client-based dynamic server switching method for use **in a distributed system including multiple servers that are simultaneously transmitting one or more real-time multimedia streams**." (Goldszmidt, col. 1, lines 6-12, emphasis added).

Further, Goldszmidt discloses:

> "The client agent 1.8 (also called simply client) can be any conventional computer or processor-based machine with a processor, memory and operating system and application software and networking (hardware and software) to communicate requests and receive data streams from a streaming server." (Goldszmidt, col. 5, lines 26-31).

It is therefore apparent that Goldszmidt's client includes the components of a stand-alone computer system or machine that is configured to receive data streams from a one of multiple servers that are separate from, but connected via a network to, the client. In contrast, Applicant's presently claimed invention is generally directed to a microprocessor and processor core, and methods therein. For example, Applicant describes:

> "One of the challenges to processing data packets at high speeds is to be able to implement functional resources within a processing core using less real estate (silicon/circuitry) than is typically used. Another challenge, at least in multi-streaming processors, is how to optimize (speed up) parallel processing of multiple data packets from separate packet flows while sharing resources in a processing core." (Description, page 4, lines 11-16).

Applicant believes distinctions between the claimed invention and the cited art are clear from both the language of the claims and the specification. Given such a stark contrast between the nature of the presently claimed invention and the cited art, Applicant submits equating the various elements of the claimed invention with elements in Goldszmidt as is done in the present Office Action is untenable. For example, claim 1 recites, in part, "A context-selection mechanism for selecting a context from a pool of contexts for processing a data packet comprising: an interface for communicating with a multi-streaming processor, said multi-streaming processor hosting the pool of contexts" and "functional units housed within the multi-streaming processor." As discussed further below, the cited art does not disclose the features as recited.

Claim 1, reproduced below for reference purposes, recites:

> "A context-selection mechanism for selecting a context from a pool of contexts for processing a data packet comprising:
>
> an interface for communicating with a multi-streaming processor, said multi-streaming processor hosting the pool of contexts;
>
> circuitry for computing input data into a value according to one or more logic rules and for selecting a context from the pool of contexts based at least in part on the value; and
>
> a loading mechanism for preloading the packet information into the selected context for subsequent processing;
>
> characterized in that the computation of the input data functions to enable identification and selection of a context for processing a data packet according to the logic rule at the instant time such that a multitude of context selections made over a period of time facilitate balancing of load pressure on functional units housed within the multi-streaming processor and required for packet processing."

It is noted that the multi-streaming processor hosts a pool of contexts and houses functional units required for packet processing. In the Office Action, Goldszmidt is cited as disclosing all of the features of claim 1. In particular, on page 3 of the present Office Action, the examiner states that Goldszmidt discloses:

> "an interface (client agent, Fig. 1a) for communicating with a multi-streaming processor (for communicating with server architecture, see elements 1.7, 1.8, Fig. 1a)."

However, Applicant does not find disclosure in Goldszmidt of a "multi-streaming processor," as recited. On page 3 of the Office Action the Examiner equates the server architecture of Goldszmidt with the recited multi-streaming processor and a streaming server with a context, and on page 4 of the Office Action the examiner equates a streaming server with the recited functional unit. In particular, Goldszmidt teaches "the server architecture includes a control server 1.1 and at least two sets (1.5, 1.6) (also called clusters) of streaming servers (1.2, 1.3)" (Goldszmidt, col. 4, lines 29-31). However, Applicant submits Goldszmidt's streaming servers are clearly not equivalent to the recited contexts hosted by a processor and functional units housed within a processor. Rather, Goldszmidt discloses:

> "Streaming technology can be used to deliver live audio and video data, where the clips arrive in streams so that users can begin to view or hear the clip before the download is complete. Conventional Internet traffic is short-lived, with a duration ranging from milliseconds to seconds, and bursty. In contrast, real-time multimedia streaming is lengthy, with a duration ranging from minutes to even hours, with low continuous bandwidth requirements. Server and/or network failures will terminate the real-time streaming process, and the stream from a given server will be interrupted for a particular session. This interruption may, in many cases, only be detected at the client. Thus, a need exists for a client-based means to automatically switch to an alternate server in order to continue receiving a multimedia stream in an uninterrupted fashion in the event of a service degradation, load imbalance, or failure. The present invention addresses such a need." (Goldszmidt, col. 2, lines 19-35).

As may be seen from the above, Goldszmidt's streaming servers are intended to address the need for automatically switching among multimedia streams from multiple Internet-connected servers. Therefore, Goldszmidt's streaming servers are distinct, Internet connected devices, rather than being functional units of a processor or contexts hosted by a processor. Accordingly, Applicant finds no teaching or suggestion in Goldszmidt of a "multi-streaming processor hosting the pool of contexts" as is recited in claim 1, or of "functional units housed within the multi-streaming processor and required for packet processing," as is further recited in claim 1. For at least these reasons, Applicant submits that claim 1 is patentably distinguishable from the cited art. Each of independent claims 13 and 26 are also distinguishable for similar reasons. As the dependent claims include at least the features of the independent claims upon which they depend, they are likewise distinguished for at least the above reasons.

In addition to the above, on page 3 of the present Office Action it is suggested that Goldszmidt discloses "a loading mechanism for preloading the packet information into the selected context (affinity tables are maintained in the TCP router/control server, see col. 6, lines 32-60) for subsequent processing (to maintaining affinity records to indicate which node is client was routed to, see col. 6, lines 32-60). However, Applicant disagrees. Rather, Goldszmidt discloses:

> "The affinity-based system includes a multi-node server, wherein any of the server nodes can handle a client request, but wherein clients have affinity to one or more of the server nodes that are preferred to handle a client request. Such affinity is due to state at the servers either due to previous routing requests, or data affinity at the server. At the multi-node server, a node may be designated as a TCP router. The address of the TCP router is given out to clients, and client requests are sent thereto. The TCP router selects one of the nodes in the multi-node server to process the client request and routes the request to this server; in addition, the TCP router maintains affinity tables, containing affinity records, indicating which node a client was routed to. In processing the client request, the server nodes may determine that another node is better suited to handle the client request, and may reset a corresponding TCP router affinity table entry. The server nodes may also create, modify or delete affinity records in the TCP router affinity table. Subsequent requests from this client are routed to server nodes based on any affinity records, possibly combined with other information (such as load)." (Goldszmidt, col. 6, lines 40-60).

As may be seen from the above, Goldszmidt's affinity tables contain indications of server state and/or previous routing decisions, not packet information for subsequent processing. Also, even were one to assume, arguendo, that Goldszmidt's streaming server is equivalent to a context as recited, Applicant notes that Goldszmidt's affinity tables are not maintained in a streaming server, but rather in the TCP router/control server. Accordingly, Applicant finds no teaching or suggestion in Goldszmidt of "a loading mechanism for preloading the packet information into the selected context for subsequent processing," as is recited in claim 1. For at least these reasons, Applicant submits that claim 1 is patentably distinguishable from the cited art. Independent claim 13 is also distinguishable for similar reasons.

In addition to the above, the dependent claims recite additional features not disclosed or suggested by the cited art. Some examples of such features are provided in the following discussion. For example, each of claims 7, 19, and 22 recite features regarding inputting statistical data into computation circuitry about previous processing time periods required to process similar data packets. It is suggested that Goldszmidt discloses these features at col. 10, lines 49-63. However, the cited disclosure of Goldszmidt merely states that a client could determine a server's delivery rate by

comparing a server's time stamp with the delivery time of a packet. Applicant submits the ability of a client to calculate a time difference is not equivalent to inputting statistical data about previous processing time periods required to process similar data packets. Also, each of claims 10 and 22 recites features regarding inputting data from a third party into computation circuitry. There is nothing in Goldszmidt that suggests these features. Accordingly, Applicant submits that claims 7, 10, 19, and 22 are patentably distinguishable from the cited art for at least these additional reasons.

Further, claims 11 and 12 recite a distribution of functional units that is symmetric or asymmetric, respectively. Goldszmidt includes no such teachings. Rather, Goldszmidt merely discloses assigning servers using even numbered ports to one set and assigning servers using odd numbered ports to another. This assignment says nothing about the symmetry or asymmetry of the resulting distribution. For at least these reasons, Applicant submits that claims 11 and 12 are patentably distinguishable from the cited art. Further, as claims 23 and 29 recite limitation similar to those of claim 11 and claims 24 and 30 recite limitations similar to those of claim 12, these claims are believed patentably distinguishable from the cited art as well.

Finally, while each of claims 8, 20, and 37 are patentably distinct for at least the reasons given above, Applicant submits the additional features of claims 8, 20, and 37 are neither disclosed nor suggested by the cited art. For example, claim 8 recites the additional features "wherein the input data into the computation circuitry further includes statistical data about the distribution of instruction types associated with individual ones of previously processed and similar data packets." In the Office Action it is generally suggested that because Zisapel discloses both DNS requests and HTTP requests, it somehow would have been obvious to modify Goldszmidt with the teachings of Zisapel so that the computation circuitry further includes statistical data about the distribution of instruction types associated with individual ones of previously processed and similar data packets. Applicant disagrees. It is first noted that the recited instruction types are not equivalent to the disclosed DNS and/or HTTP requests. Rather, this distinction between instruction types and DNS or HTTP requests simply further highlights the distinctions

between the nature of the claimed invention and that of the cited art. As discussed above, the claimed invention is generally directed to a processor and instructions therein. The computing system of Zisapel with its disclosed requests bears no resemblance to the presently claimed invention. Accordingly, Zisapel does not disclose the recited instruction types and the combination of Goldszmidt and Zisapel does not provide all the features of the claimed invention. Therefore, Applicant submits a prima facie case of obviousness has not been established with respect to these claims.

CONCLUSION

Applicant submits the application is in condition for allowance, and an early notice to that effect is requested.

Respectfully submitted,

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